Remarks:

Applicants have carefully reviewed the objections to the claims, and rejection thereof in view of the prior art. Claims 1, 6, 7, 13, 18 and 19 have been amended. Claims 5 and 17 have been cancelled without prejudice or disclaimer. New claims 25 and 26 have been added. Claims 1-4, 6-16 and 18-26 are currently pending. Applicants appreciate that the previous basis of rejection of the claims has been considered, but now rendered moot in view of the new grounds of rejections. Nonetheless, the Applicants disagree with the rejections for the reasons that will follow.

Presently amended claim 1 now recites, inter alia, that the method segments the region into at least two new regions. Claim 1 also specifies that the new regions are arranged in a matrix, and that they are equal in size.

Claims 1-24 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Office Action requested that Applicants point to support for the limitation "continually computing a number of equidistant horizontal and vertical splits". In response thereto, this limitation in the independent claims have been redrafted and read "computing a number of equidistant horizontal and vertical splits to apply to the initial region as a function of the distance of the input device to the initial position, wherein segmentation of the region is computed by equally sectioning the region into rows and/or columns by dividing in both x and y directions the distance from the current pointer position to the position of the pointer as it was when the user entered the segmenting mode with a constant scaling factor applied to the distance and using the result to determine the number of equal sized horizontal and vertical splits". Support for this limitation appears:

In the code:

after line [0070]: Determine the final cell size rcBox.Width /= in_xCells; rcBox.Height /= in_yCells

This indicates that the width and height of each newly created box is calculated by dividing the previous frame's dimensions by the number of cells in X and Y that are to be created –an even spacing will result.

In the diagrams:

All diagrams illustrate that segmentation is 'even' during the splitting operation.

Figure 14 indicates an even segmentation of the frame (both in the preview overlay at step 2 and the final results in step 3)

Figure 15 further shows three even segmentations:

2 across (step 2),

3 across (step 3),

3 across and 2 down (step 4),

And the same in the final result (step 5)

Figure 16 shows even segmentation even though the frame in question has been partially obscured by another frame that has been translated so as to partially occlude the underlying frame.

Figure 17 shows another even segmentation, created with a different display for the 'preview' phase.

To be clear: Figures 4 and 13 illustrate 'uneven' arrangements of frames. However as noted in the text in Figure 13, these arrangements were produced by the sequential application of splitting operations, detailed step-by-step in Figure 13, which can be seen to have even splits at each step. Applicants assert that the rejection under 35 U.S.C. § 112 has been overcome and request that the rejection be withdrawn.

Claims 1-10, 12-22 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cecco et al. in view of Farrah and further in view of Kishi. Applicants assert that the independent claims are allowable over the art of record for at least the following reasons, addressing each cited reference in turn.

CECCO

As indicated in the Office Action, , Cecco fails to teach all of the limitations of the independent claims. More importantly however, Applicants assert that Cecco cannot serve as a basis for rejecting the claims on the ground of obviousness, since Cecco teaches away from the present invention.

More specifically, the following differences between the instant claims and Cecco are as follows:

a. Cecco teaches that at most one single new pane will be created.

i. col 2, line 57: "It is a further object of the invention to allow users to divide a single, existing pane into two panes which take up the same space as the

previous pane but also permits new panes to accommodate space from multiple, existing panes".

ii. Also col 3, line 34: "upon release of the user control, a new pane is created..."

iii. It is acknowledged that Cecco teaches that multiple splits are possible (e.g col 3, line 66: "a common feature ... is the capability to divide a single window into multiple panes") – however – in Cecco, the multiple splits are intended to happen over the course of multiple splitting operations.

iv. The current invention enables the user to split a single region into multiple subregions (e.g. a 3x3 grid) in a single action. This is not taught by Cecco.

b. Cecco requires that the initial pane and subsequent new pane be members of a strict, tiled, non-overlapping hierarchy of panes.

i. Claim 1

ii. col 7 line 31: "The implementation of the splitting behavior for this invention requires S to be a hierarchical tiling".

iii. Tiling is defined as non-overlapping at col 7 line 27: "S is a tiling of A if and only if, for each point p in A, p is a member of exactly one region Xi in S.

iv. Col. 7 line 19: ""Tiling" means an arrangement of panes on a screen that completely covers the parent's window in such a way that the panes do not overlap".

v. Specifically, the panes are children nodes of some root node;

vi. The current invention does not have this requirement. The regions that result from a splitting operation are completely independent – and can be moved freely about, scaled or translated such that they overlap with one another, rotated, and grouped.

c. Cecco teaches that splitting will occur in exactly one direction at a time.

i. Implied by cursor design at col 5, line 13: "The two parallel bars indicate that a pane splitting action will be taking place and this will occur in the direction of movement of the cursor in the direction of the arrow" and at col. 5, line 24: "It becomes readily apparent in which direction the cursor is to be moved for the subsequent splitting".

ii. Made explicit at col 7 line 44: ".. each node comes in one of three forms: a horizontal node, a vertical node, or a leaf node".

iii. The current invention enables the user to split in both horizontal and vertical directions by simply dragging left/right, up/down, or any combination. A horizontal drag may produce a new [3x1] set of frames – a vertical drag a [1x3] set; a diagonal drag a [3x3] set.

d. Cecco teaches that two types of splitter controls are required (horizontal and vertical).

i. A splitter at the left or right of a pane can only be dragged left or right to split a pane horizontally.

ii. A splitter at the top or bottom of a pane can only be dragged up or down to split a pane horizontally.

iii. As such there must be at least two splitter controls to enable a frame to be split in two directions, and two user actions must be accomplished to perform a two-way split.

iv. The current invention requires only a single splitter control which can function either horizontally, vertically, or both (with a single action).

e. Cecco strongly indicates that positioning splitter controls on window borders is preferred.

i. Claim 1 is not specific about where the pane modification means are located, however the text unambiguously says that the split control is expected to reside in the pane borders:

ii. col 3, line 18: "The improvement comprises pane modification means (divide grab handle) in a border of a pane...".

iii. Made explicit at col 4, line 67: "such pane modification means could be placed at any other location along the borders of pane 6".

iv. The current invention does not have this requirement; the split control can be located anywhere in the user interface.

f. Cecco teaches that splitting is possible on panes within a containing window.

i. col. 1, line 50: Pane is "a portion of a window or could also include the entire window".

ii. Reinforced by reference to prior art at Col. 2, line 25: "by [use of a split bar] the window is split into two panes which are of fixed and non-variable sizes".

iii. Specifically, because panes exist within windows, then moving the window will move all the panes it contains. Resizing the window will have some impact upon the panes contained by that window.

iv. The current invention does not require the newly-created regions to be children of the original containing region; rather, the original containing region is destroyed, replaced by the set of newly-created regions.

Cecco indeed teaches that iterative splitting of the region is possible by a sequence of split, however:

a. Each split operation will produce at most one new region, as noted above; the current invention can produce multiple splits in a single step.

b. Note the Cecco describes only a horizontal or a vertical split, but not both simultaneously, at col 7 line 45. Therefore a 2x2 grid is not directly representable within Cecco's system and will require three splitting operations:

i. split 1: [2x1]

ii. split 2: [[1x2][1x1]]

iii. split 3: [[1x2][1x2]]

c. Worse, creating a 3x3 grid in Cecco's system will require 8 splitting operations:

i. Split 1: [2x1]

ii. Split 2: [3x1]

iii. Split 3: [[1x2][1][1]]

iv. Split 4: [[1x3][1][1]]

v. Split 5: [[1x3][1x2][1]]

vi. Split 6: [[1x3][1x3][1]]

vii. Split 7: [[1x3][1x3][1x2]]

viii. Split 8: [[1x3] [1x3] [1x3]]

d. The current invention describes multi-directional, single-step splitting. Creating a 2x2 grid requires a single action, as does a 3x3 grid.

e. The interactive segmenting mode that Cecco describes is different from that in the current invention, as described above.

f. Cecco teaches the illustration of the previewed single new pane being added by means of a rubber band rectangle. This is suitable because only one pane will be added.

i. In the current invention, multiple panes may be added. Therefore the set of new panes that will be added cannot be represented by a single rubber band rectangle.

ii. The means in the current invention is a set of lines drawn atop the initial region in the positions that the splits will be applied. The preview of a 3x3 split involves the drawing of 4 lines (2 horizontal and 2 vertical).

g. The interactive segmenting mode that Cecco describes is different from that in the current invention, as described above. Moreover the new panes (21) are not 'independent' – they are hierarchical children of the containing window. This is not labeled in Figures 5A-C but Figure 1 shows the containing window 1.

i. The new panes cannot overlap.

ii. The new panes will move with the parent window.

iii. The current invention has no such restrictions.

Cecco cannot be combined with Farrah to create a two-dimensional split. First, there is no teaching or motivation in Cecco to modify the teachings of Cecco. Even if there were, which the Office Action has failed to support, Farrah cannot overcome the deficiencies of Cecco for at least the following reasons:

a. Cecco's hierarchy enables only horizontal OR vertical splits, and not the horizontal-AND-vertical split required to produce a 2x2 grid in a single action (col 7 row 46). A 2x2 grid can only be represented as a [[1x2][1x2]] set of three splits.

b. Cecco's means of splitting (the controls in the pane borders) are also typed to split only in horizontal or vertical directions; see col. 8 line 66.

c. Therefore Cecco cannot provide feedback as to the number of rows and/or columns that will result from interaction with the input device; in Cecco as presented, only rows or columns can be added but not rows AND columns. Had Cecco considered two-dimensional splits he would have included a third split type in his hierarchy, provided a new user interface means for splitting that produced a split of this type, and described the algorithm to determine the selection of a type of split to apply.

It should further be noted that Figure 23 is missing from Farrah (in the USPTO web site version of the application as well as physical copy received), but seems critical to understanding paragraphs [0236]-[0237], which are material to this discussion. However, the following observations will be made in respect of Farrah as best understood.

Farrah is describing the interactive specification of a snapping grid overlay, which can no more be combined with Cecco than the grid overlay in, say, Photoshop.

Farrah teaches...	**The present application differs in that:**
Multiple subdivision	(The same)
...Of a single large region into smaller regions (e.g. not windows, just regions defined by overlaid grid lines)	The result of the splitting operation is a set of independently movable/rotatable/etc objects
where the regions serve to produce coordinates which can be used as inputs to rules which determine the position of graphical objects within Farrah's layouts – in the form of expressions (e.g. O(1)CC>PG(1,1)CC as described in [0173])	(has no correlation within the present application)
...Where the 'number of overlays' count in X and Y is a persistent, editable attribute of the	The 'number of splits' count determines the one-off production of a set of new,

canvas overlay (e.g. the user can change their mind and reduce the number of split overlays from 3 down to 2).	independent frames who then have no relationship to the split parameter; the number of splits cannot be adjusted after the splitting operation is complete (excepting undo, of course).

Basically, Farrah is producing a grid overlay, much like any modern drawing application supports the overlay of a regular grid on top of a canvas to facilitate alignment. What distinguishes Farrah's grid from typical grid overlays are the following:

- The grid can be distorted (e.g. moving vertical or horizontal lines about).
- The spaces between grid lines can be selected by the user.
- Sides or centers of Art objects can be constrained to snap to specific edges or intersections or functions of these grid lines.

However, the purpose of Farrah's grid is to produce coordinates for use in rules governing art object positions. Although selectable, these regions are not manipulable: they cannot be rotated, or moved to overlap one another. This flexibility is core to the regions presented in the current application, as illustrated in Figure 16 (overlapping) and Figure 7 (rotation).

In this respect, Farrah's work can be reduced to a grid overlay where the number of divisions in X and Y can be set by the user.

The present application deals with the splitting of selectable, manipulatable frames into smaller, equally selectable and manipulatable frames. A frame can be rotated, made to overlap with other frames, and scaled without affecting neighboring frames. The regions implied by the spaces between Farrah's grid lines cannot do any of these things – indeed, the grid lines are

merely overlays over a canvas. The Office Action notes that the number of spaces can be increased or decreased – but this is also true of changing the scale on a grid overlaid over the canvas in a drawing application – this has nothing to do with creating or destroying a set of independent, manipulable frames.

Even supposing that Cecco could be combined with the notion of changing a number to increase the number of subdivisions:

Cecco is referring to a hierarchy of windows – new window frames are explicitly made into children of existing frames (bottom box of Figure 8b). In the context of a hierarchical windowing system, this implies that the name frame is bounded by the parent frame's dimensions – that is, that resizing the parent may resize the child, and that if the child is independently translatable (which is nowhere hinted at by Cecco) then it would be constrained to the parent's bounding rectangle. In contrast, in the present application, splitting a single frame produces a set of independent, peer frames which can be resized and repositioned without modifying one another or subject to limitations imposed by a parent frame. This is the notion of independent frames, as positively claimed in the amended independent claims.

In Cecco, the position of one of a newly-created window's borders is equal to the position of the user input device – evidenced in the flow charts, the source code, and the text: the (single) new frame will have an edge where the user left the cursor "at mouse up". In the present application, the position of edges in the newly-created frames are a function of the number of new frames created. A column of 3 vertical frames (produced by applying a single "split twice" operation) will have edges at position 0%, 33%, 66%, and 100% of the height of the initial frame. Cecco's method maps mouse position to window border position; the method of the present invention maps mouse position to frame count and frame count to frame border position. Cecco determines border position; in the present application, frame count is determined.

Thus the user interaction is different, the nature of the objects that is created is different, and the scope of how many objects that can be created is different (between Cecco and the instant application) – and Farrah is different again on all three axes.

Thus, it is respectfully submitted that a person skilled in the art would find no motivation in either Cecco or Farrah to combine the references to attempt at arriving to the solution taught by the present invention.

The Office Action has further combined the references as improperly applied with Kishi to attempt to find a solution to the problem solved by the present invention. Even if Cecco and Farrah could be modified as suggested in the Office Action, which it is submitted a person skilled in the art would not be led to, Kishi fails to overcome the deficiencies of the combined references.

Kishi describes setting the value of ONE parameter by dragging the cursor (in a circular motion.) The present application describes setting the number of splits in the X and Y directions simultaneously (e.g. setting two values with a single operation). Even if one supposes that Kishi's method can be applied to setting two parameters at once – what then? Farrah's technique would yield an overlaid grid with different dimensions – still not capturing the essence of what the current application is doing and not achieving what the present application achieves.

Claims 11 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cecco et al. in view of Moore et al. Moore fails to overcome the deficiencies of Cecco et al, or the combination of Cecco and other prior art, as discussed above. Applicants assert that independent claims 1 and 13 patentably distinguish over Cecco et al. in view of Moore et al. and claims 11 and 23 patentably distinguish over Cecco in view of Moore for at least the same reasons.

A speedy and favorable action in the form of a Notice of Allowance is hereby solicited. If the Examiner feels that a telephone interview may be helpful in this matter, please contact Applicants' representative at (612) 336-4728.

Respectfully submitted,

MERCHANT & GOULD P.C.

Dated: 12/18/07

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